

### **III. REMARKS**

The Examiner has not acknowledged receipt of the certified copies of Applicants' foreign priority documents. Applicants respectfully request that the Examiner acknowledge receipt of Applicants' foreign priority documents, which were previously filed on April 9, 2004.

Applicants have not yet received initialed forms PTO/SB/08 back from the Examiner corresponding to the Information Disclosure Statements (IDSs) previously filed on February 3, 2006 and on August 16, 2006. Therefore, Applicants respectfully request that the Examiner consider these IDSs and provide Applicants with initialed copies of the corresponding USPTO forms PTO/SB/08.

Claims 19-28 have been withdrawn because they pertain to a non-elected invention. Applicants contend that upon allowance of the invention of Group I, claims 1-18, that the invention of non-elected Group II, claims 19-28, should be rejoined with the allowed claims in accordance with MPEP § 821.04 because the claims of Group II depend upon the claims of Group I, and, therefore, incorporate all of the subject matter of at least one allowed claim.

#### **A. The Invention**

The present invention pertains broadly to a reducer of blood glucose level increase, a reducer of body fat accumulation, and a food material. In accordance with an embodiment of the present invention, a reducer of blood glucose level increase is provided that includes elements recited by independent claim 1. In accordance with another embodiment of the present invention, a reducer of blood glucose level increase is provided that includes elements recited by independent claim 2. In accordance with yet another embodiment of the present

invention, a reducer of blood glucose level increase is provided that includes elements recited by independent claim 3.

In accordance with another embodiment of the present invention, a reducer of body fat accumulation is provided that includes elements recited by independent claim 4. In accordance with yet another embodiment of the present invention, a reducer of body fat accumulation is provided that includes elements recited by independent claim 5. In accordance with still another embodiment of the present invention, a reducer of body fat accumulation is provided that includes elements recited by independent claim 6.

In accordance with another embodiment of the present invention, a food material is provided that includes elements recited by independent claim 7. In accordance with yet another embodiment of the present invention, a food material is provided that includes elements recited by independent claim 8. In accordance with still another embodiment of the present invention, a food material is provided that includes elements recited by independent claim 13. In accordance with another embodiment of the present invention, a food material is provided that includes elements recited by independent claim 14. Various other embodiments, in accordance with the present invention, are recited by the dependent claims.

An advantage provided by the various embodiments of the present invention is that palatinose is employed to have beneficial effects on a individual's metabolism by, for example, reducing the level of glucose increase after ingesting a carbohydrate, and/or reducing the accumulation of fat after ingesting a carbohydrate.

**B. The Rejection**

Claims 1-18 stand rejected under 35 U.S.C. § 102(b) as anticipated by Mentink et al. (U.S. Patent 5,360,621, hereafter the "Mentink Patent").

Applicants respectfully traverse the Examiner's rejection and request reconsideration of the above-captioned application for the following reasons.

**C. Applicants' Arguments**

Anticipation under 35 U.S.C. § 102 requires showing the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). In this case, the Examiner has failed to establish a prima facie case of anticipation against Applicants' claimed invention because the Mentink Patent does not teach, or even suggest, "palatinose" as recited in Applicants' independent claims.

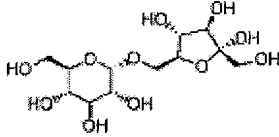
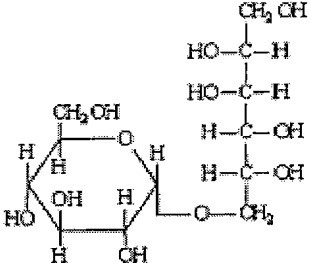
**i. The Mentink Patent**

The Mentink Patent discloses "low-calorie chocolate," wherein the low-calorie chocolate contains (a) fat, preferably derived from cocoa, (b) a sweetening mass, (c) at least one emulsifier, and, optionally, (d) desiccated defatted cocoa and/or a pulverulent milky product or a derivative thereof, characterized in that the low-calorie chocolate has a total fat content of less than 32% by weight, preferably less than 31% by weight and still more preferably less than 29% by weight relative to all of the abovementioned ingredients, and in that the sweetening mass is based on at least one product chosen from the group consisting of crystallized maltitol of high purity, lactitol, **hydrogenated isomaltulose** and low-calorie saccharide polymers (See Abstract of the Mentink Patent).

While the Mentink Patent discloses a sweetening mass based on hydrogenated isomaltulose, the Mentink Patent is totally silent with respect to the use of palatinose. Therefore, the Mentink Patent does not teach, or suggest "palatinose" as recited by independent claims 1-8, 13 and 14.

A person of ordinary skill in the art would know that “palatinose,” which is also known as “isomaltulose” (See, e.g., <http://www.chemblink.com/products/58166-27-1.htm>, downloaded on September 22, 2008, one page, filed herewith as “Exhibit A”), is a completely different compound from “hydrogenated isomaltulose,” which is also known as “isomalt” (See, e.g., the PDF document titled “Isomalt,” which contains five pages downloaded from the “Online Edition: “Combined Compendium of Food Additive Specifications” of the website [www.fao.org](http://www.fao.org) on September 22, 2008, and which is filed herewith as “Exhibit B”). To highlight the fact that palatinose and hydrogenated isomaltulose are completely different compounds, the Examiner’s attention is directed to Table I below.

Table I: Facts Demonstrating that Palatinose and Isomalt are Different Compounds

	Palatinose (aka isomaltulose)	Isomalt (aka hydrogenated isomaltulose)
Molecular Formula <sup>1, 2</sup>	C <sub>12</sub> H <sub>22</sub> O <sub>11</sub>	C <sub>12</sub> H <sub>24</sub> O <sub>11</sub>
Structural Formula <sup>1, 2</sup>		
Molecular Weight <sup>1, 2</sup>	342.30	344.32
C.A.S. Number <sup>1, 2</sup>	58166-27-1	64519-82-0
Calorific Value <sup>3, 4</sup>	4 kcal/g	2.1 kcal/g

<sup>1</sup> See Exhibit A.

<sup>2</sup> See Exhibit B.

<sup>3</sup> See Jun Kashimura and Yukie Nagai, *Addition Ratio of Palatinose and Body Fat Accumulation in Mice*, 13 FOOD SCI. TECHNOL. RES. 81-84 (2007), at 81, left col., lines 1-6, filed herewith as “Exhibit C.”

<sup>4</sup> See U.S. Patent 4,971,798 issued to Coia et al., col. 1, lines 7-25, filed herewith as “Exhibit D.”

As evident from Table I above, Palatinose and hydrogenated isomaltulose have substantially different molecular formulas, substantially different structural formulas,

substantially different molecular weights, substantially different chemical properties such as calorific values, and are cataloged as completely different compounds by C.A.S. A person of ordinary skill in the art would know that hydrogenated isomaltulose is a reduced palatinose (See Exhibit D, col. 1, lines 7-25), which makes it one of the sugar alcohols (i.e., a polyol). Therefore, hydrogenated isomaltulose is not at all a “palatinose” (isomaltulose). As disclosed by the Mentink Patent, col. 3, lines 11-13, polyols have an estimated mean calorific value of about 2.4 kcal/g, which is about 60% that of sugar.

For all of the above reasons, the Examiner has failed to establish that the Mentink Patent anticipates any claim of the above-captioned application.

**ii. Additional Comments Regarding the Present Invention and  
Unexpected Results**

Although the Examiner has not evinced any rejection against the claimed invention under 35 U.S.C. § 103, Applicants point out that the present invention provides unexpected results over what is commonly known in the art. The Federal Circuit has held that the common sense of those skilled in the art may demonstrate why some combinations are obvious and others are not. Leapfrog Enterprises, Inc. v. Fisher-Price, Inc., 485 F.3d 1157, 1161 (Fed. Cir. 2007). Furthermore, when an applicant adduces specific data demonstrating substantially improved results, and states that the results are unexpected, then in the absence of evidence to the contrary, applicant has established unexpected results sufficient to prove the invention is nonobvious. In re Soni, 34 U.S.P.Q.2d 1684, 1687-88 (Fed. Cir. 1995). The invention need only be compared to the closest prior art, In re Johnson, 223 U.S.P.Q. 1260, 1264 (Fed. Cir. 1984), however, it is acceptable to compare the invention to subject matter that is closer to the invention than the closest prior art. Ex parte Humber, 217 U.S.P.Q. 265, 266 (Bd. Pat. App. & Inter. 1981).

The present invention is based on the discovery of unknown attributes pertaining to palatinose, which are that palatinose reduces the blood glucose level increase caused by ingesting glucose, sucrose, and the like, and palatinose reduces body fat accumulation caused by ingesting glucose, sucrose and the like. Furthermore, palatinose reduces the blood glucose level increase caused by ingesting carbohydrates other than palatinose and palatinose reduces the body fat accumulation caused by ingesting carbohydrates other than palatinose.

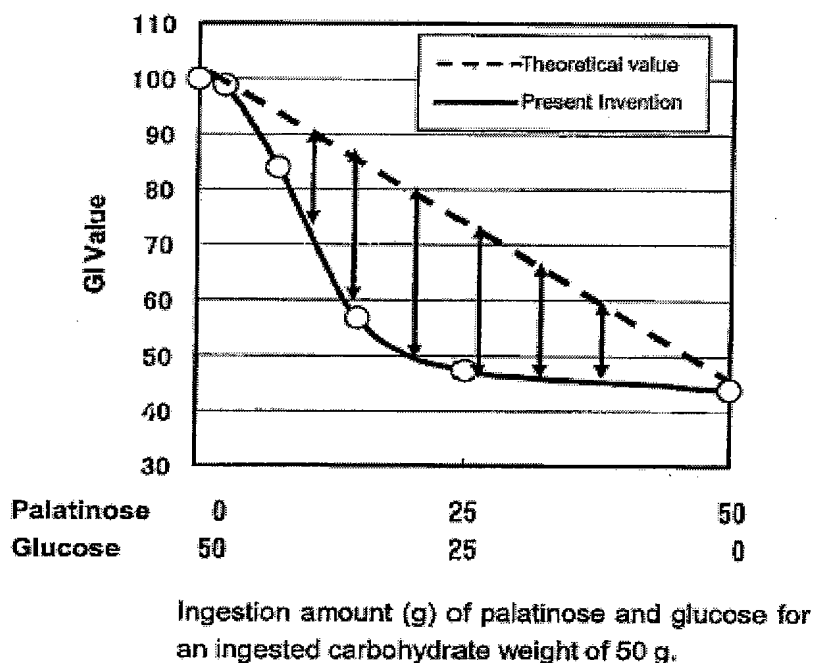
Specifically, the present invention provides a distinctive and wholly unexpected effect in that palatinose, by itself, reduces blood glucose level increase otherwise caused by the ingestion of at least one carbohydrate selected from the group consisting of maltose, sucrose, high fructose corn syrup, glucose, starch, dextrin, and branched dextrin (hereafter, collectively referred to as “maltose and the like”). Applicants explain, as follows, how it is that the present invention encompasses a “food material” and a “reducer of blood glucose level increase” in accordance with the present invention.

As is known, palatinose has a Glycemic Index (GI) of 44 and exhibits a gentler blood glucose level increase than when glucose itself is ingested (See, e.g., Exhibit C, at 81, left col., lines 1-18). GI is a value expressed relative to 100, which corresponds to the area under the curve for blood glucose level increase by glucose (See, e.g., Figure 4 and ¶ [0064] of Applicants’ disclosure as originally filed, and webpage titled “About Glycemic Index,” <http://www.glycemicindex.com/aboutGIprint.htm>, downloaded September 23, 2008, 2 pages, filed herewith as “Exhibit E”).

When palatinose is ingested substantially simultaneously with glucose, the blood glucose level increase resulting from ingestion of these carbohydrates would be expected to yield a weighted average of the blood glucose level increase due to ingestion of glucose alone and of the blood glucose level increase due to ingestion of palatinose alone. This theoretical expected rise in blood glucose level is denoted by the dashed line (--) shown in Figure A

below. Figure A is based, in part, on original Figure 4 of the above-captioned application (See also Applicant's specification as originally filed, at ¶ [0064]).

Fig. A. Relationship between GI value and palatinose ingestion amount



As shown in Figure A above, when palatinose is actually ingested substantially simultaneously with glucose, the corresponding GI value curve (i.e., the solid curve in Figure A) diverges considerably from the theoretically predicted curve (i.e., the dashed line) determined from the weighted average of glucose level increase for glucose ingested alone and palatinose ingested alone. In other words, palatinose reduces the blood glucose level increase caused by glucose ingestion, as observed in Figure A, because GI value has dropped from the theoretical curve by the amount indicated by the vertical arrows. The conclusion is, therefore, that palatinose by itself has the function of a “reducer of blood glucose level increase” because it reduces the blood glucose level increase following ingestion of glucose when ingested substantially simultaneously with glucose.

As would be immediately appreciated by a person of ordinary skill in the art, the present invention achieves an unexpected effect that wholly overturns conventional

knowledge, and that provides the novel application of a “reducer of blood glucose level” wherein palatinose, by itself, reduces blood glucose level increase due to ingestion of maltose and the like when ingested substantially simultaneously with maltose and the like. Thus, the present invention provides an unexpected “reducer of blood glucose level increase” and a “foodstuff” that diminishes the blood glucose level increase otherwise expected to be observed when maltose and the like is ingested with palatinose.

For all of the above reasons, the Mentink Patent cannot sustain a prima facie case of obviousness against Applicants’ claimed invention.

### **III. CONCLUSION**

The Examiner has failed to establish a prima facie case of anticipation against independent claims 1-8, 13 and 14 of the above-captioned application because the Mentink Patent does not teach, or suggest, “palatinose” as recited by these claims.

For all of the above reasons, claims 1-18 are in condition for allowance, and a prompt notice of allowance is earnestly solicited.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

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